

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 57 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 57 is unclear and ambiguous. It is unclear how the hardened glass sheet is overturned when released from a last roller/backing roller pair.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 29-32, 36, 38, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by NEDELEC et al. (US 4,292,065).

NEDELEC teaches a method for shaping thermoplastic sheet material wherein the glass is first heated to its softening temperature and then caused to travel over a shaping bed that imparts a transverse and longitudinal curvature (abstract) as in instant claim 29. Figure 1 shows that the shaping bed moves in an arc-shaped profile.

NEDELEC discloses that the glass sheet is then tempered after shaping (abstract).

NEDELEC discloses an embodiment in which the shaping bed comprises a full half

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circle and the glass is released to a horizontal conveyer below the infeed (col. 7, lines 21-27) as in instant claim 29.

Figure 1 shows that the glass sheets are brought horizontally to the shaping bed as in instant claim 30. NEDELEC discloses that the glass sheets travel on a horizontal conveyer leaving the shaping bed (col. 7, lines 21-27) as in instant claim 30.

Figure 1 shows that the glass sheets first travel along a flat trajectory before entering the curved shaping bed as in instant claim 31. NEDELEC discloses that the curved shaping bed is tangential to the heating zone (col. 2, lines 32-38).

NEDELEC discloses that it is known in the art that glass may be sagged by gravity after being brought to its softening point (col. 1, lines 45-47) as in instant claim 32.

Figure 1 shows that the glass travels along a descending path as in instant claim 36. NEDELEC discloses that the glass sheets travel on a horizontal conveyer upon leaving the shaping bed (col. 7, lines 21-27) as in instant claim 36.

Figures 5 and 6 show that the apparatus of NEDELEC uses waisted/barreled rods as in instant claim 38.

NEDELEC discloses that air is blown across the glass sheets during the shaping bed (col. 7, lines 21-27) as in instant claim 42.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 56 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over NEDELEC et al. (US 4,292,065).

NEDELEC discloses that the method can be used to produce bent glass (col. 1, lines 6-8) as in instant claim 56.

9. Claims 33-35, 37, 39, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over NEDELEC et al. (US 4,292,065).

NEDELEC teaches a method for shaping thermoplastic sheet material wherein the glass is first heated to its softening temperature and then caused to travel over a shaping bed that imparts a transverse and longitudinal curvature (abstract). NEDELEC discloses an embodiment in which the shaping bed comprises a full half circle and the glass is released to a horizontal conveyer below the infeed (col. 7, lines 21-27).

It would have been obvious that causing the glass sheets to travel along an ascending path as in instant claim 33 would have been a simple reversal of parts. In re

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Gazda, 219 F.2d 449, 104 USPQ 400 (CCPA 1955) determined that the reversal of parts in an apparatus is an obvious expedient.

It would have been obvious that if the glass travels along a semi-circle shaping bed that the glass sheets would end up on its reverse side at the end of the shaping as in instant claims 34 and 35.

NEDELEC discloses that the glass sheets are passed by air blowing manifolds (col. 7, lines 21-24) which would cool the glass as in instant claim 37.

NEDELEC discloses that in the transverse and longitudinal directions the radius of curvature may range from infinite to less than 1 meter (col. 6, lines 25-28). A person of ordinary skill could have reached the ranges of instant claim 39 by optimization for intended purposes.

NEDELEC is silent as to the distance between the glass sheets but it would have been obvious to one having ordinary skill in the art to keep the glass sheets close in order to produce more bent glass sheets in a small amount of time. A person of ordinary skill in the art could have reached the range of instant claim 44 by optimizing the process.

10. Claims 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over NEDELEC et al. (US 4,292,065) in view of GULOTTA (US 3,409,422).

NEDELEC teaches a method for shaping thermoplastic sheet material wherein the glass is first heated to its softening temperature and then caused to travel over a shaping bed that imparts a transverse and longitudinal curvature (abstract). NEDELEC

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discloses an embodiment in which the shaping bed comprises a full half circle and the glass is released to a horizontal conveyer below the infeed (col. 7, lines 21-27).

NEDELEC is silent as to the temperature of the glass.

GULOTTA teaches a method and apparatus for forming compound bends in glass sheets. GULOTTA discloses that the glass sheets are at a temperature of 1200 °F, or 648.9 °C, (col. 8, lines 12-13) during the bending operation, which would fall into the range of instant claim 40. It would have been obvious to use the temperature of GULOTTA because NEDELEC references the GULOTTA patent in its specification as an apparatus known prior art for creating complex bends in glass(col. 1, lines 64-66). Therefore, the claimed invention would have been obvious.

11. Claims 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over NEDELEC et al. (US 4,292,065) in view of JOHNSON (US 4,139,359).

NEDELEC teaches a method for shaping thermoplastic sheet material wherein the glass is first heated to its softening temperature and then caused to travel over a shaping bed that imparts a transverse and longitudinal curvature (abstract). NEDELEC discloses an embodiment in which the shaping bed comprises a full half circle and the glass is released to a horizontal conveyer below the infeed (col. 7, lines 21-27). NEDELEC is silent as to the thickness of the glass and air quench pressure.

JOHNSON teaches a method and apparatus for shaping glass sheets by roll forming. JOHNSON teaches that the heat softened glass are shaped to compound bends by being continuously conveyed by means of forming rolls to a curved shaping

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bed similar to the method of NEDELEC. JOHNSON teaches that the glass sheets are quenched by air supplied to the top of the sheet at a pressure of 20 ounces per square inch and air supplied to the bottom of the sheet at a pressure of 5 ounces per square inch (col. 20, lines 30-35) which would create a total pressure of 25 ounces per square inch, or 1.08×10^4 Pa, which would fall within the range of instant claim 41.

JOHNSON discloses that a glass sheet having 5 mm, which would fall within the range of instant claim 43, and treated under the disclosed requirements would meet automotive code (col. 20, lines 53-55). It would have been obvious that the method of NEDELEC would use the conditions of JOHNSON because NEDELEC discloses that the bent glass sheets are used in the automotive market (col. 1, lines 61-63).

Therefore, the claimed invention would have been obvious.

12. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over NEDELEC et al. (US 4,292,065) in view of JOHNSON (US 4,123,246).

NEDELEC teaches a method for shaping thermoplastic sheet material wherein the glass is first heated to its softening temperature and then caused to travel over a shaping bed that imparts a transverse and longitudinal curvature (abstract). NEDELEC discloses an embodiment in which the shaping bed comprises a full half circle and the glass is released to a horizontal conveyer below the infeed (col. 7, lines 21-27).

NEDELEC is silent as to the temperature of the glass.

JOHNSON teaches a method for shaping and quenching glass sheets by roll forming.

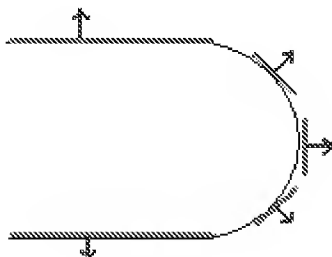
JOHNSON discloses that it is preferable for the glass sheet to pass from the heating

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zone and leave the quenching zone in under 5 seconds (col. 2, lines 34-36). It would have been obvious that NEDELEC would use the same production rate because JOHNSON discloses that under those circumstances, thin glass sheets could be tempered without imparting high initial temperatures (col. 2, lines 36-39). Therefore, the claimed invention would have been obvious.

Response to Arguments

13. Applicant's arguments filed December 3, 2008 have been fully considered but they are not persuasive. The applicant argues on page 10 that the leaf springs of NEDELEC that extend over 90° are not part of the shaping bed however, it is clear from figure 1 that the leaf springs are part of the forming bed. Figure 2 also shows that the leaf springs are included in the shaping bed. NEDELEC discloses that bending occurs between zones A-E, which would clearly include the leaf springs. Applicant argues on page 12 that NEDELEC does not teach overturning the glass sheet. However, it would have been obvious to one of ordinary skill that the glass would have been overturned if traveling in a semi-circle. The examiner has drawn the following figure to illustrate how one of ordinary skill in the art would have known that the glass was overturned.



Applicant argues on page 12 that NEDELEC fails to teach the limitations of claim 57, however, the language of instant claim 57 is vague and unclear, which lends itself to a 112 2nd paragraph rejection. It is unclear to one of ordinary skill in the art how the hardened glass sheet is suddenly overturned when released from a last roller/backing roller pair.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CYNTHIA SZEWCZYK whose telephone number is (571)270-5130. The examiner can normally be reached on Monday through Thursday 7:30 am to 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS

/ Carlos Lopez/

Primary Examiner, Art Unit 1791